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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,279	03/28/2001	Johannes Nicolaas Bakker	NL 000171	6876

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P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT PAPER NUMBER

2612

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/819,279	<b>Applicant(s)</b> BAKKER ET AL.	
	<b>Examiner</b> LUONG T. NGUYEN	<b>Art Unit</b> 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

1-9 and 11

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected. 1-9 and 11
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed on 10/27/2005 have been fully considered but they are not persuasive.

In re page 7, Applicants argue that Toyoda fails to teach or suggest a method of averaging stored images to remove light modulation. Toyoda simply does not teach or suggest a method for using a light modulation removal means to detect the effect of motion on a scene.

In response, regarding claim 1, the feature “a method of averaging stored images to remove light modulation, and a method for using a light modulation removal means to detect the effect of motion on a scene” are not recited in claim 1. It should be noted that claim 1 is an apparatus claim, not method claim.

Instead, claim 1 recited limitation “a light modulation removal means between the processing unit and the end processing unit for removing light modulation between different fields of the picture, by averaging images having the same light modulation,” which is disclosed by Toyoda et al. Toyoda et al. discloses “light modulation removal means for removing light modulation” as combination of elements 14, 15, 17A, 17B, 17C, 17D, 19, 20, which corrects a flicker, figure 2, column 5, lines 1-50); Toyoda et al. discloses “averaging images” as calculating mean brightness, column 3, lines 55-59; column 4, lines 40-47.

Claim 1 also recited limitation “said light modulation removal means comprises a motion detector for detecting the effect of motion on a scene,” which is disclosed by Uematsu. Uematsu discloses a flicker reducing circuit 10 consists of a noise reducer 11 in which mosquito noise are

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removed through motion detection between a previous frame and the following frame, and a motion detection signal in motion detection (Figure 1, Column 6, Lines 49-67).

In re page 8, Applicants argue that Uematsu fails to teach or suggest, or even mention averaging stored images having the same light modulation.

In response, regarding claim 1, the feature “averaging stored images having the same light modulation” is not recited in claim 1. Instead, claim 1 recited limitation “averaging images having the same light modulation.” Toyoda et al. as discussed above disclose this feature.

In re page 8, Applicants argue that Uematsu does not teach or suggest a method for detecting the effect of motion on a scene via the light modulation removal means.

In response, regarding claim 1, the feature “a method for detecting the effect of motion on a scene via the light modulation removal means” is not recited in claim 1. It should be noted that claim 1 is an apparatus claim, not method claim.

Instead, claim 1 recited limitation ““said light modulation removal means comprises a motion detector for detecting the effect of motion on a scene,” which is disclosed by Uematsu. Uematsu discloses a flicker reducing circuit 10 consists of a noise reducer 11 in which mosquito noise are removed through motion detection between a previous frame and the following frame, and a motion detection signal in motion detection (Figure 1, Column 6, Lines 49-67).

In re page 8, Applicants argue that Callahan fails to teach or suggest any method for motion detection, as admitted by the Office Action dated May 4, 2005 (page 8, section 11).

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Callahan fails to teach or suggest a method for averaging stored images, and fails to teach or suggest averaging entire images based on light modulation.

In response, it is noted that claims 2-9 are apparatus claims and depend on apparatus claim 1. See Examiner's comments as discussed above according to claim 1.

In re page 9, Applicants argue that Callahan also fails to teach or suggest means to correct consecutive images to the same temporal position using motion compensation techniques prior to the averaging, as admitted by the Office Action dated May 4, 2005 (page 9, section 12).

In response, regarding claim 8, Thompson et al. discloses this feature. Thompson et al. discloses an apparatus for deinterlacing digital video images comprises a deinterlacing processor which generates the interlaced video stream having reduced motion artifacts, which corresponds to "correct consecutive images," column 3, lines 5-8.

In re page 9, Applicants argue that Callahan fails to cure the defects of Toyoda and Uematsu with respect to claim 1.

In response, it should be noted that claim 1 is rejected under 35 U.S.C. 103 (a) in view of Toyoda et al. and Uematsu.

In re page 10, Applicants argue that Thompson fails to teach or suggest averaging the different fields of dependence in motion, and/or locations with low respectively high luminance locations.

In response, regarding claim 11, Van Roy et al. discloses this feature. Van Roy et al. discloses a flicker compensation for cameras, in which the average video in at least N fields can be used to compensate for flicker (column 3, lines 19-25).

In re page 10, Applicants argue that Thompson does not teach or suggest averaging to determine a weighted average of horizontally adjacent detection values.

In response, regarding claim 11, this limitation is not recited in claim 11.

In re page 10, Applicants argue that Thompson does not teach or suggest averaging stored images with similar light modulation, and Thompson does not mention a method of light modulation removal that also detects the effect of motion.

In response, regarding claim 11, Applicants recited limitation “the removing step comprises averaging images having the same light modulation, and detecting the effect of motion on a scene.” Toyoda et al. discloses averaging images having the same light modulation, and Uematsu discloses detecting the effect of motion on a scene as discussed above according to claim 1.

In re page 11, Applicants argue that Toyoda does not teach or suggest a method of storing images.

In response, regarding claim 11, Applicants recited limitation “storing different field of the picture.” Thompson et al discloses this feature. Thompson et al. discloses storing adjacent video fields in digital memory unit 59 (figure 8, column 4, lines 38-50).

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In re page 12, Applicants argue that Uematsu fails to teach or suggest a method of detecting motion on differences in light modulation between fields.

In response, it is noted that this feature is not recited in claim 11.

In re page 12, Applicants argue that Uematsu also fails to teach or suggest a method for removing light modulation by storing and averaging different fields of the picture in dependence of motion.

In response, regarding claim 11, Thompson discloses storing different field of the picture (store video fields in memory unit 59, figure 8, column 4, lines 38-50). And Van Roy et al. discloses averaging different fields of the picture in dependence of motion (the average video in at least N fields can be used to compensate for flicker, column 3, lines 19-25).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda et al. (US 6,630,953) in view of Uematsu (US 5,892,551).

Regarding claim 1, Toyoda et al discloses a camera for recording pictures comprising an image sensor (imaging 11, figure 2, column 4, lines 18-35) for receiving a picture, a processing unit (pre-processing portion 12, figure 2, column 4, lines 18-35) for processing the picture and an

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end processing unit (main processing portion 21, figure 2, column 6, lines 9-14), characterized in that the camera comprises a light modulation removal means (combination of elements 14, 15, 17A, 17B, 17C, 17D, 19, 20, figure 2, column 5, lines 1-50, correcting a flicker) between the processing unit and the end processing unit for removing light modulation between different fields of the picture, by averaging images having the same light modulation (calculating mean brightness, column 3, lines 55-59; column 4, lines 40-47).

Toyoda et al. fails to specifically disclose wherein said light modulation removal means further comprises a motion detector for detecting the effect of motion on a scene. However, Uematsu teaches a flicker reducing circuit 10 consists of a noise reducer 11 in which mosquito noise are removed through motion detection between a previous frame and the following frame, and a motion detection signal in motion detection (figure 1, column 6, lines 49-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Toyoda et al. by the teaching Uematsu in order to reduce flicker to minimize a degradation of an image (column 4, lines 1-3).

4. Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda et al. (US 6,630,953) in view of Uematsu (US 5,892,551) further in view of Callahan (US 6,380,985).

Regarding claim 2, Toyoda et al. and Uematsu fail to specifically disclose the light modulation removal means comprise adaptive fading means for fading between one field and at least n fields, whereby n is the repetition pattern of light modulation. However, Callahan discloses a system for resizing and anti-flicker filter in reduced-size video images, in which after one field is output and begins to fade, the other field is output to replace the fading first field. This alternating pattern results in a continual refreshing of the displayed image (column 4, lines



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33-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Toyoda et al. by the teaching Callahan in order to let the image appears constant the viewer (column 4, lines 39-41).

Regarding claim 3, Toyoda et al. discloses means to calculate the lowest common multiple of the repetition period of said illumination variation and the repetition period of said picture, which lowest common multiple is used as common period to average consecutive images of said picture during recording (column 1, lines 15-26, column 6, lines 39-49).

Regarding claim 4, Callahan discloses means to decrease the averaging of consecutive images (Callahan discloses a system for resizing and anti-flicker filter in reduced-size video images, in which after one field is output and begins to fade, the other field is output to replace the fading first field (column 4, lines 33-45). This means the averaging of consecutive images is decreased).

Regarding claim 5, Toyoda et al. discloses means to estimate the modulation strength on a locality of the image (the mean luminance detector 14 calculates mean brightness (modulation strength) of the respective four divided areas of every field, figure 2, column 4, lines 36-47). Callahan discloses reducing means to reduce the averaging on localities where the light modulation is weak (Callahan discloses after one field is output and begins to fade, the other field is output to replace the fading first field, this means that the averaging on localities is reduced, column 4, lines 33-45).

Regarding claim 6, Callahan discloses means to reduce the averaging on localities where the luminance component of said picture is low (Callahan discloses after one field is output and begins to fade, the other field is output to replace the fading first field, this means that the averaging on localities is reduced, column 4, lines 33-45).

Regarding claim 7, Callahan discloses means to exclude high spatial frequency components of the picture from the averaging step (Callahan discloses that at a high frequency the flicker is imperceptible to the human eye, the image appears constant to the viewer, column 4, lines 33-45).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda et al. (US 6,630,953) in view of Uematsu (US 5,892,551) and Callahan (US 6,380,985) further in view of Thompson et al. (US 6,489,998).

Regarding claim 8, Toyoda et al., Uematsu and Callahan fail to specifically disclose means to correct consecutive images to the same temporal position using motion compensated conversion techniques prior to the averaging. However, Thompson et al. discloses an apparatus for deinterlacing digital video images comprises a deinterlacing processor which generates the interlaced video stream having reduced motion artifacts (correct consecutive images, column 3, lines 5-8). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Toyoda et al., Uematsu and Callahan by the teaching of Thompson et al. in order to allow for the detection and reduction of motion artifacts

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in video images, the video image becomes much clearer and appears to be free of defects, column 3, lines 38-42).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda et al. (US 6,630,953) in view of Uematsu (US 5,892,551) further in view of Thompson et al. (US 6,489,998).

Regarding claim 9, Toyoda et al. and Uematsu fail to specifically disclose de-interlacing means to generated information for any missing position in the original interlaced image, using two images with different interlace phases and equal light modulation phases. However, Thompson et al. discloses an apparatus for deinterlacing digital video images comprises a deinterlacing processor which generates the interlaced video stream having reduced motion artifacts (correct consecutive images, column 3, lines 5-8). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Toyoda et al. and Uematsu by the teaching of Thompson et al. in order to allow for the detection and reduction of motion artifacts in video images, the video image becomes much clearer and appears to be free of defects, column 3, lines 38-42).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoda et al. (US 6,630,953) in view of Thompson et al. (US 6,489,998) further in view of Van Rooy et al. (US 6,657,659) and Uematsu (US 5,892,551).

Regarding claim 11, Toyoda et al. discloses a method of removing light modulation during recording pictures with an image sensor having the step of receiving the picture (imaging

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11, figure 2, column 4, lines 18-35), processing the picture (pre-processing portion 12, figure 2, column 4, lines 18-35), removing the light modulation (combination of elements 14, 15, 17A, 17B, 17C, 17D, 19, 20, figure 2, column 5, lines 1-50, correcting a flicker), averaging images having the same light modulation (calculating mean brightness, column 3, lines 55-59; column 4, lines 40-47).

Toyoda et al. fails to specifically disclose storing different field of the picture. However, Thompson et al. discloses storing adjacent video fields in digital memory unit 59 (figure 8, column 4, lines 38-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Toyoda et al. by Thompson et al. in order to store image signal.

Toyoda et al. and Thompson et al. fail to specifically disclose averaging the different fields in dependence of motion, and/or locations with low respectively high luminance locations. However, Van Roy et al. discloses a flicker compensation for cameras, in which the average video in at least N fields can be used to compensate for flicker (column 3, lines 19-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Toyoda et al. and Thompson et al. by Van Roy et al. in order to correct fast flicker effect in the camera (column 3, lines 1-2).

Toyoda et al., Thompson et al. and Van Roy et al. fail to specifically disclose detecting the effect of motion on a scene. However, Uematsu teaches a flicker reducing circuit 10 consists of a noise reducer 11 in which mosquito noise are removed through motion detection between a previous frame and the following frame, and a motion detection signal in motion detection (figure 1, column 6, lines 49-67). Therefore, it would have been obvious to one of ordinary skill

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in the art at the time the invention was made to modify the device in Toyoda et al., Thompson et al. and Van Roy et al. by the teaching Uematsu in order to reduce flicker to minimize a degradation of an image (column 4, lines 1-3).

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGOCYEN VU can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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NGOC YEN VU  
PRIMARY EXAMINER